
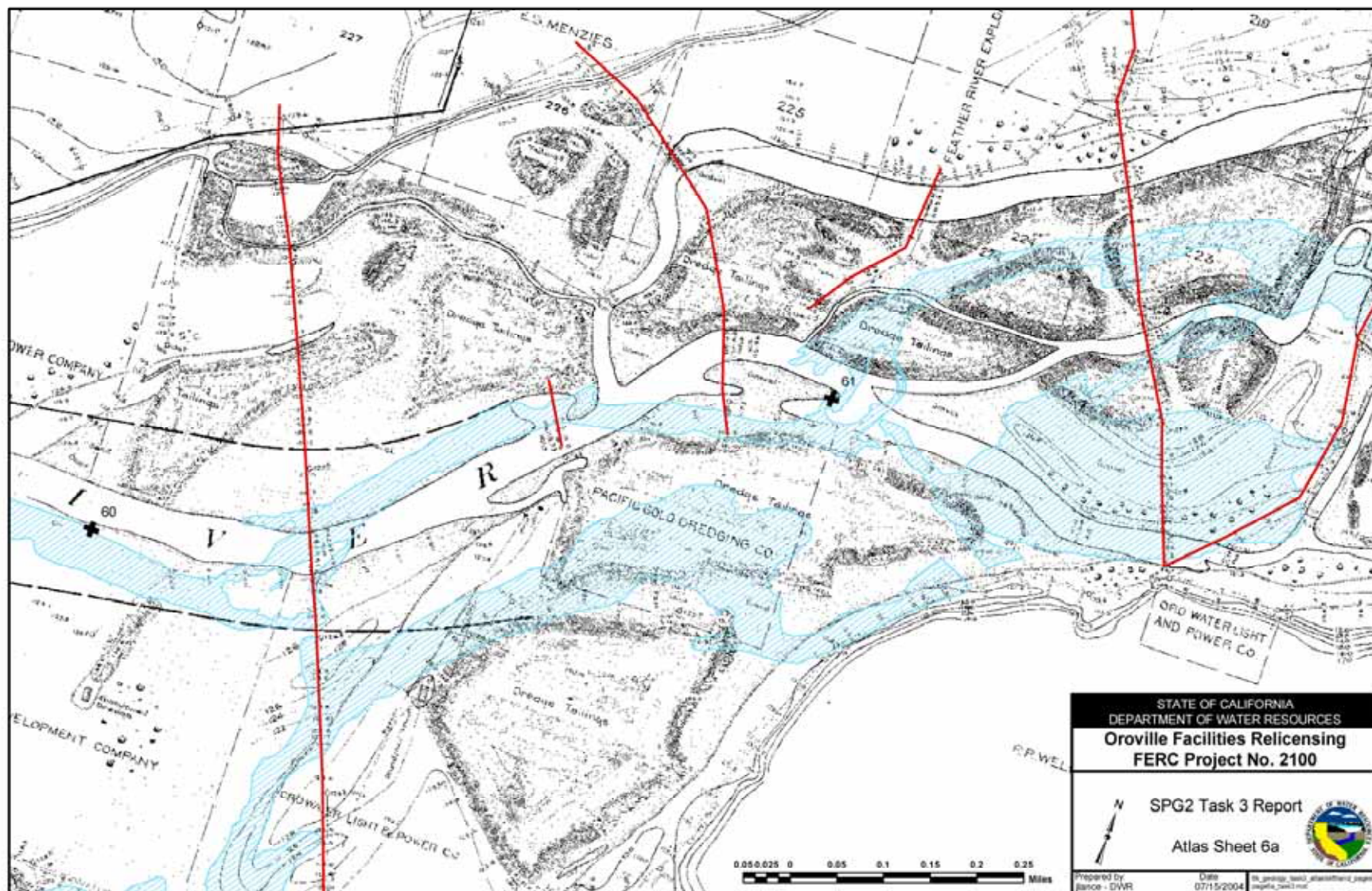


# SP – G2 TASK 3 and 4

CHANNEL CROSS-SECTIONS  
and PHOTOGRAPHY and  
MONITORING

A decorative graphic consisting of several concentric circles in shades of blue, resembling ripples in water, located in the bottom right corner of the slide.

		DATE	AGENCY	TITLE	USACE River mile (start)	USACE River mile (end)	# of cross- sections
	pre-Oroville Dam	1909	United States. War Dept and United States. Army. Corps of Engineers	Feather River, California	0.0	67.0	331
		1924	United States. Army. Corps of Engineers		6.9	24.5	13
		1925	United States. Army. Corps of Engineers	Sacramento River, California, revision of flood control project : showing profiles			
		1939	United States. Army. Corps of Engineers	Preliminary Examination			
		1965	California. Dept. of Water Resources	Determination of the Channel Capacity of the Feather River,	16.0	50.5	37
	post-Oroville Dam	1968	United States. Army. Corps of Engineers. Sacramento District and California. State Reclamation Board	Flood plain information, Feather and Yuba Rivers, Marysville-Yuba City, California : prepared for the California State Reclamation Board ... et al.			
		1968	United States. Army. Corps of Engineers and California. Reclamation Board	Flooded areas, Nicolaus, California			
		1968	United States. Army. Corps of Engineers and California. Reclamation Board	Floods, Maryville-Yuba City, California			
		1968	California. Dept. of Water Resources - Central District	Progress Report of Documentation of the Feather River Floodplain Conditions	11.5	53.2	10
		1972	California. Dept. of Water Resources - Central District	Feather River : Safety			
		1972	United States Geological Survey	Determination of Channel Changes in the Feather River	44.7	67.2	71
		1978	United States Geological Survey	Sediment Transport in the Feather River			
		1981	California. Dept. of Water Resources - Northern District	Spawning Gravel Study	49.6	66.8	158
		1983	California. Dept. of Water Resources - Northern District	Spawning Gravel Study (Moe's Ditch)	66.5	66.8	42
		1986	United States. Army. Corps of Engineers	Feather River : Oroville Dam to Sacramento River			
		1990	United States. Army. Corps of Engineers. Sacramento District	Yuba River Investigation	5.0	29.3	37
		1991	California. Dept. of Water Resources - Northern District	IFIM Study (unpublished data)	45.5	66.6	34
		1992	United States. Army. Corps of Engineers. Sacramento District		6.9	27.3	15
		1994	California. Dept. of Water Resources - Central District	IFIM Study (unpublished data)	0.5	44.0	6
		1998	United States. Army. Corps of Engineers. Sacramento District and California. Reclamation Board	Yuba River Basin investigation, California : final feasibility report and appendixes			
		1999	United States. Army. Corps of Engineers. Sacramento District and California. Reclamation Board	Sacramento River Comprehensive Study - UNET Data			
		2002	California. Dept. of Water Resources - Northern District	Re-surveys of IFIM cross-sections (unpublished data)	44.7	67.2	12 of 34



STATE OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES  
**Oroville Facilities Relicensing**  
**FERC Project No. 2100**

SPG2 Task 3 Report  
Atlas Sheet 6a

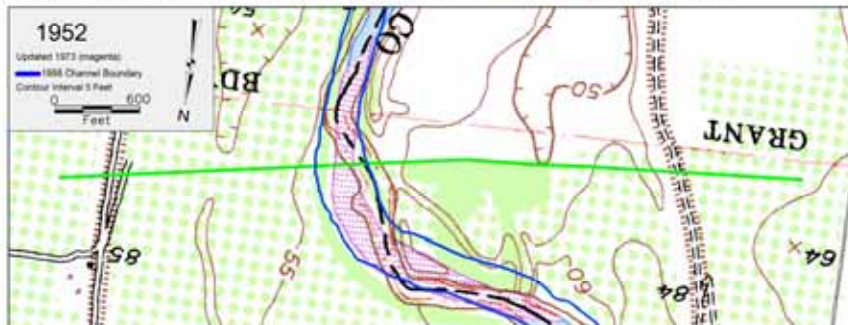
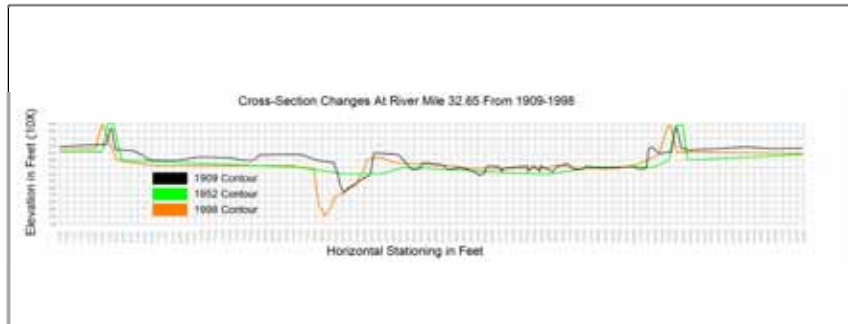


Prepared by  
Bancroft - DWR

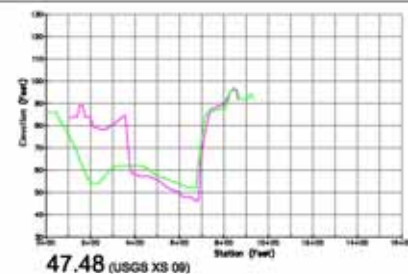
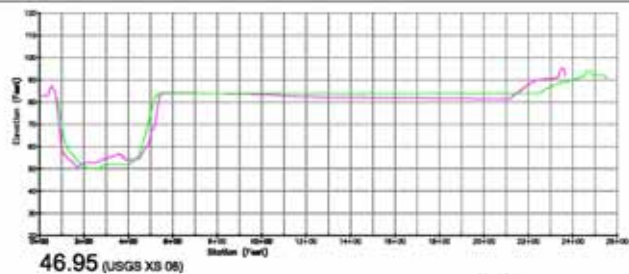
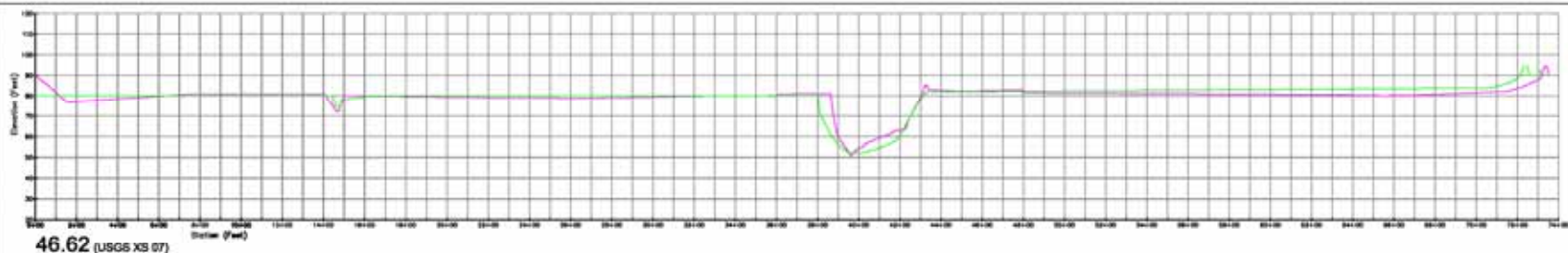
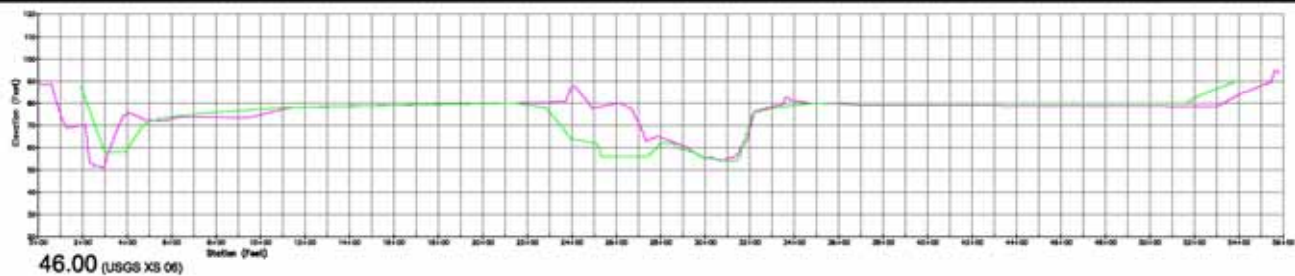
Date  
07/15/2004

file:spg2task3\_report\_atlas/atlas6a.pdf  
project:spg2task3





		left floodplain 1		channel			right floodplain 1	
YEAR	XS code	Change in Actual Area (ft2)	Change in Average Elevation (ft)	Change in Width (ft)	Change in Actual Area (ft2)	Change in Average Elevation (ft)	Change in Actual Area (ft2)	Change in Average Elevation (ft)
1909	28.88							
1997	28.88	-43432	-6.9	42	-1,975	-9.0		
1909	30.39							
1997	30.39	11070	10.1	32	-962	-5.2	6,417	3.2
1909	32.65							
1997	32.65	-3035	-5.3	91	837	-9.0	-14,694	-0.7
1909	33.67							
1997	33.67	17294	-1.1	-98	-9,183	-13.3	-5,798	-0.4
1909	35.68							
1997	35.68	1625	-2.3					
1909	36.11							
1997	36.11			2	-3,592	-11	286	0
1909	38.47							
1997	38.47	-10077	-1.2	-63	-9,987	-18		
1909	43.55							
1997	43.55	-75898	-1.6	441	14,010	-14	16,534	-3
1909	44.86							
1997	44.86	-118633	-0.6	686	39,697	-9	130,303	1
1909	45.77							
1997	45.77	-69025	-1.4	443	21,970	-10	22,959	0
1909	46.77							
1997	46.77	-13750	-2.5	330	15,653	-10	-38,262	0
1909	47.83							
1997	47.83			35	-1,898	-9	-197,867	-12
1909	48.97							
1997	48.97	-81477	-3.0	136	-646	-9	-67,700	-3
1909	49.98							
1997	49.98	-206363	-7.1	170	9,658	-4	2,828	-3
1909	51.11							
1997	51.11	-66796	-0.8	578	45,919	1	5,179	-2
1909	53.59							
1997	53.59	-163876	-5.4	373	28,704	-2	-292,295	-2



#### LEGEND

- 1971 USGS Survey
- 1997 2-foot contour mapping
- 1" = 500' (Horizontal Scale)
- 1" = 50' (Vertical Scale)
- Vertical Exaggeration: 10x

#### Notes:

- 1) Seventy-one cross-sections were surveyed in July 1970 by the United State Geological Survey as part a 1972 Open-File Report (Determination of Channel Capacity of the Feather River between Oroville and Honcut Creek, Butte County, California by J.C. Blodgett). The cross-sections were scanned, then digitized from figures in the Open-File Report.
- 2) The 1997 cross-section was generated from 2-foot contour topographic mapping from the U.S. Army Corps of Engineers (COE) Comprehensive Study. The actual cross-section was generated using Land Developer and AutoCad software.

STATE OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES

#### Oroville Facilities Relicensing FERC Project No. 2100

SP-G2 -- Task 3  
Appendix B -- Plate 2  
Channel Changes  
1970 -- 1997



Prepared by:  
JRM - DWR

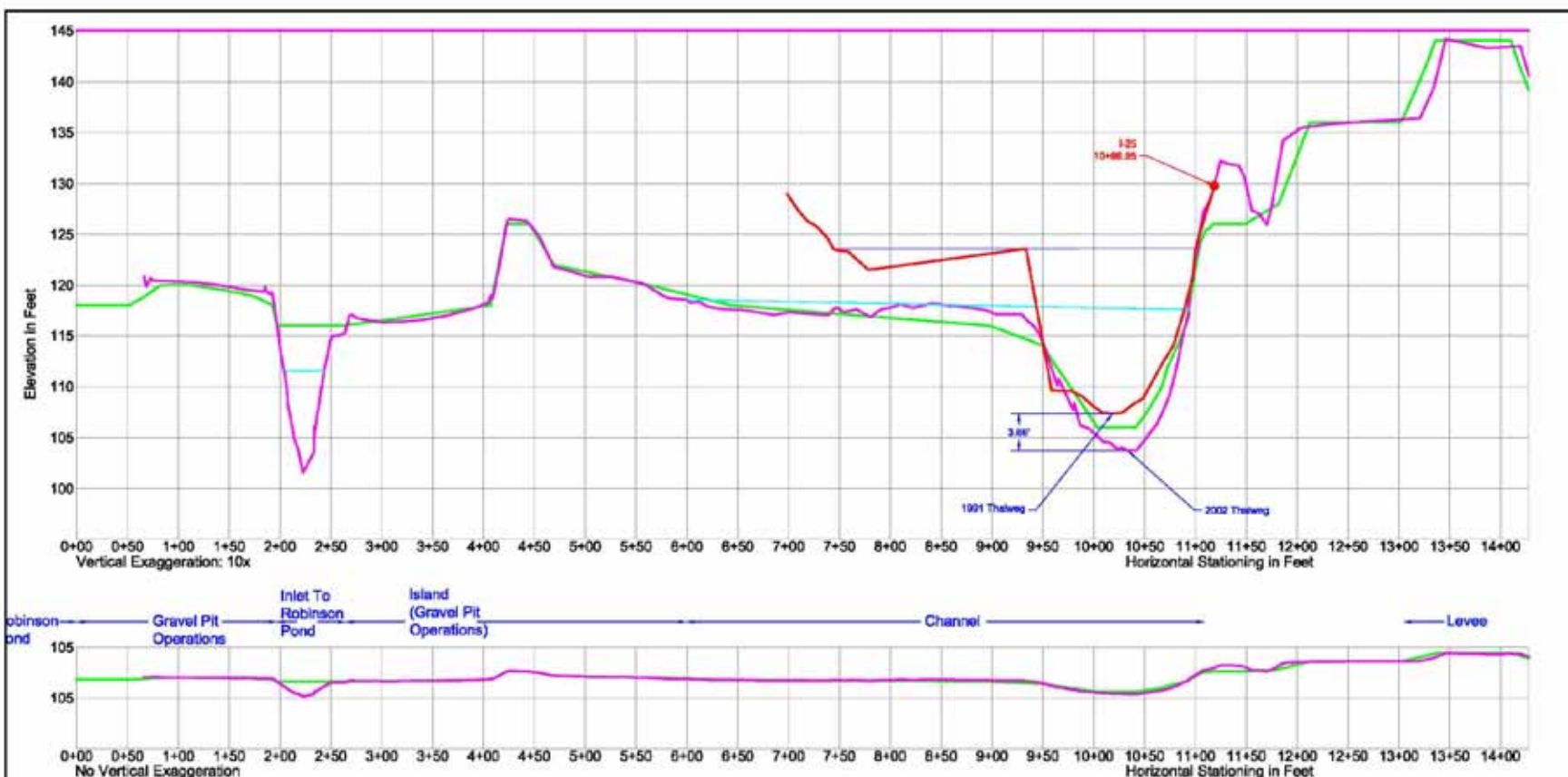
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8/19/04

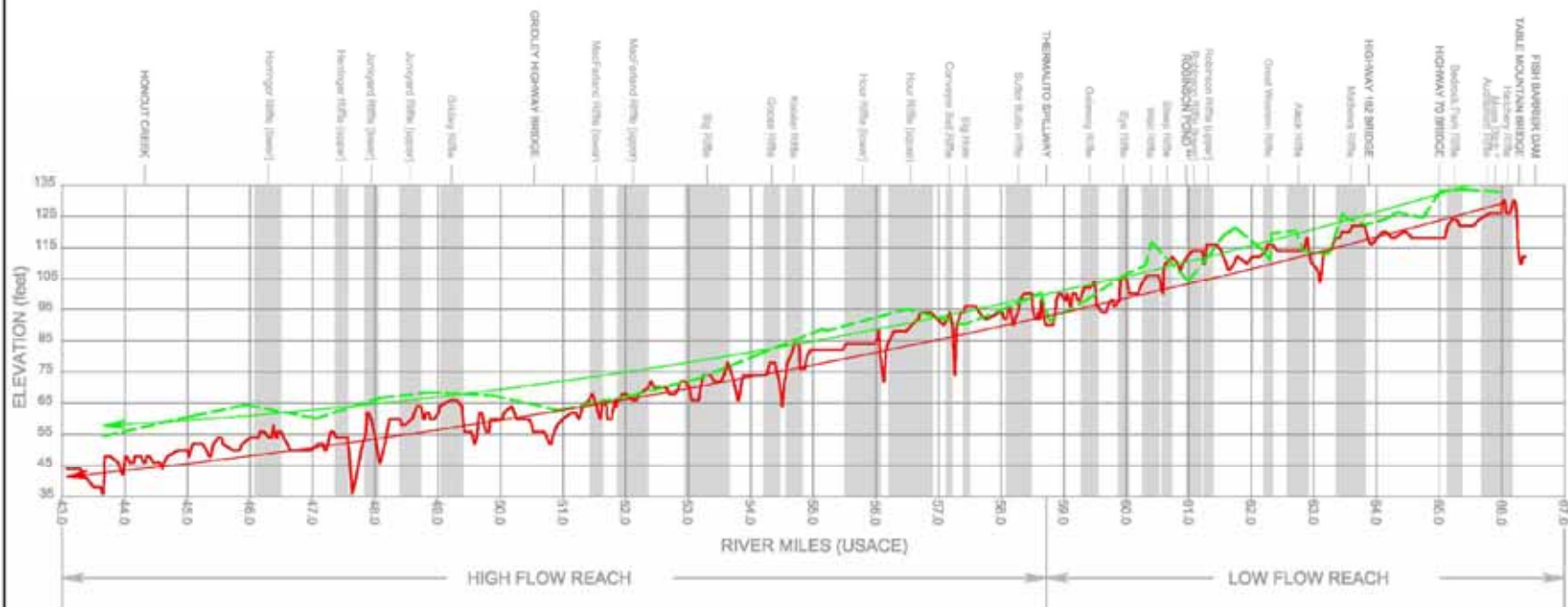
Filename:  
CrossSections-BlodgettvsCOE.dwg

			Left Floodplain		Channel				
YEAR	AGENCY	XS code/Riv er Mile	Change in Area (ft2)	Average Elevation	Change in Width (ft)	Change in Area (ft2)	Change in Average Elevation (ft)	Change in Actual Area (ft2)	Change in Average Elevation (ft)
1972	Blodgett	XS 01							
1997	USACE	44.32							
1972		XS 02							
1997		44.66							
1972		XS 03							
1997		45.13							
1972		XS 04							
1997		45.36			-10	-1,713	-3	-5,309	-2
1972		XS 05							
1997		45.65	30,274	1	97	6,278	2	-9,074	2
1972		XS 06							
1997		46.00	-27,078	0	385	22,620	-1	10,171	1
1972		XS 07							
1997		46.62	831	0	79	4,156	-1	-967	2
1972		XS 08							
1997		46.95			-2	-444	-1	3,947	1
1972		XS 09							
1997		47.48			13	1,545	2		
1972		XS 10							
1997		47.72	-4,555	1	-82	-6,202	-1		
1972		XS 11							
1997		48.07	-2,132	1	21	-555	-4		
1972		XS 12							
1997		48.80	-10,558	-1	-15	-6,259	-5		
1972		XS 13							
1997		49.38	13,459	0	-29	-4,359	-2		
1972		XS 14							
1997		49.92	3,794	2	-18	-1,512	0		
1972		XS 15							
1997		50.21	47,348	1	34	302	-2		
1972		XS 16							
1997		50.46	-14,038	2	69	6,041	2		
1972		XS 17							
1997		50.55	-9,641	1	30	1,301	-2		
1972		XS 18							
1997		50.63	9,361	0	-15	-1,953	-3		
1972		XS 19							
1997		50.69	-390	-1	-9	-1,320	-2		

**Table 5.1-2 1992 IFIM Cross-Section and 2002 Re-surveys**

River Mile	Riffle/Feature	Cross-section	Length of Cross-section	DWR Geology Right Bank Point	DWR Geology Left Bank Point
	AR-LB-CP-3	monument found and GPS surveyed in 2002			
	Transect 1	entire transect GPS surveyed in 2002			
	Table Mountain Bridge				
	Hatchery Riffle	Transect 1	563.0	I - 1	I - 2
66.4	Auditorium Riffle	Transect 3	492.9	I - 3	I - 4
	Auditorium Riffle	Transect 2	504.2	I - 5	I - 6
	Auditorium Riffle	Transect 1	541.6	I - 7	I - 8
65.8	Bedrock Park Riffle				
	Bedrock Park Riffle				
	Highway 70 Bridge				
	Highway 70 Bridge				
	River Bend Park				
	River Bend Park				
64.5	Highway 162 Bridge	Transect 1		I - 9	I - 10
63.8	Mathews Riffle	Transect 3		I - 11	I - 12
	Mathews Riffle	Transect 2		I - 13	I - 14
	Mathews Riffle	Transect 1		I - 15	I - 16
63.4	Aleck Riffle	Transect 3	191.4	I - 17	I - 18
	Aleck Riffle	Transect 2	198.9	I - 19	I - 20
	Aleck Riffle	Transect 1	393.6	I - 21	I - 22
62.7	Great Western Riffle	Transect 1	280.6	I - 23	I - 24
61.1	Robinson Riffle	Transect 3	393.0	I - 25	I - 26
	Robinson Riffle	Transect 2	419.1	I - 27	I - 28
	Robinson Riffle	Transect 1	417.9	I - 29	I - 30
60.8	Steep Riffle				
	Steep Riffle				
60.6	Weir Riffle	Transect 2	324.2	I - 31	I - 32
	Weir Riffle	Transect 1	299.5	I - 33	I - 34
60.4	Gateway Riffle				
	Gateway Riffle				
58.7	Sutter Butte Riffle			I - 35	I - 36
	Sutter Butte Riffle				
57.5	Conveyor Belt Riffle	Transect 2LC	162.6	I - 37A	I - 37B
	Conveyor Belt Riffle	Transect 2RC	196.2	I - 38A	I - 38B
	Conveyor Belt Riffle	Transect 1	467.8	I - 39	I - 40
56.7	Hour Riffle	Transect 3	342.1	I - 41	I - 42
	Hour Riffle	Transect 2	362.0	I - 43	I - 44
	Hour Riffle	Transect 1	346.2	I - 45	I - 46
55.2	Keister Riffle				
	Keister Riffle				
54.8	Goose Riffle	Transect 3	186.9	I - 47	I - 48
	Goose Riffle	Transect 2	284.7	I - 49	I - 50





#### LEGEND

- 1997 Thalweg
- - - 1909 Thalweg
- 1997 Thalweg - Polynomial Best Fit
- - - 1909 Thalweg - Polynomial Best Fit

#### NOTES

- 1) River miles based on USACE 1997 river center line. 0.0 = Feather River intersection with Sacramento River.
- 2) 1997 Best Fit line generated from data extending from RM 40.1 to RM 66.0.
- 3) 1909 Best Fit line generated from data extending from RM 39.5 to RM 65.9.
- 4) \* Spawning gravel injection at Moe's Ditch from 1971 to 1982
- 5) \*\* Robinson Pond - apparent gravel trap

STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES		
Oroville Facilities Relicensing FERC Project No. 2100		
<b>FIGURE 5.1-2</b> <b>SP-G2 TASK 3</b> <b>FEATHER RIVER</b> <b>THALWEG PROFILES 1909 - 1997</b> <b>OROVILLE TO HONCUT CREEK</b>		
Prepared by GWS - DWR	Date 8/12/04	Filename Feather River Thalweg.dwg

Table 6.1-2 Number of photos taken at various features on the Feather River by years that exist in data base.

Location/Feature	'81-'83	'91-'93	02-'04
Oroville Dam	12	2	
Fish Barrier Dam			4
Fish Hatchery			3
Hatchery Riffle	7	9	75
Hatchery Riffle/Moe's Ditch	5		3
Moe's Ditch	124		46
Hatchery Riffle/Auditorium Riffle			10
Moe's Ditch/Auditorium Riffle	1		
Auditorium Riffle	5	12	96
Bedrock Park Riffle	14		33
River Run Park			4
Highway 162 Bridge		8	
Mathews Riffle		14	59
Mathews Riffle (tailings)			11
Aleck Riffle	2	13	39
Aleck Riffle (tailings)			20
Great Western Riffle		8	
Great Western Riffle/Robinson Riffle			28
Robinson Riffle	15	24	111
Robinson Riffle/Steep Riffle		1	
Robinson/Steep/Weir/Eye/Gateway		1	
Steep Riffle			89
Weir Riffle		14	38
Eye Riffle			82
Eye Riffle/Gateway Riffle		1	
Gateway Riffle			28
Thermalito Afterbay Outlet	12	1	25
Thermalito Afterbay Outlet (tailings)			23
Sutter Butte Riffle	9		34
Big Hole	1		



**Figure 6.2-1** Auditorium Riffle showing the riffle in 1982



**Figure 6.2-2** Auditorium Riffle showing the riffle in 2004 from similar vantage point.

# MONITORING

- Gravel Quality
- Gravel Movement
- Sediment Budget
- Channel Form
- Thalweg Incision
- River Meander
- Bank Erosion